

WHAT IS CLAIMED IS:

1. A display control device for outputting an output image signal, the display control device comprising:

a characteristic value-calculating unit operable to calculate a characteristic value based on an input image signal; and

a conversion characteristic-calculating unit operable to determine at least one conversion characteristic adaptively with respect to the input image signal based on the characteristic value.

2. The display control device as defined in claim 1, wherein said characteristic value-calculating unit calculates a plurality of characteristic values based on the input image signal.

3. The display control device as defined in claim 1, the display control device further comprising a signal-converting unit operable to convert the input image signal in accordance with the conversion characteristic determined by said conversion characteristic-calculating unit.

4. A display control device for outputting an output image signal, the display control device comprising:

a conversion characteristic-calculating unit operable to determine a conversion characteristic adaptively with respect to an input image signal;

a signal-converting unit operable to convert the input image signal in accordance with the conversion characteristic determined by said conversion characteristic-calculating unit;

a weight-calculating unit operable to apply a mask to the input image signal in accordance with a weighting characteristic to generate a masked image signal; and

a characteristic value-calculating unit operable to calculate a characteristic value based on the masked image signal generated by said weight-calculating unit,

wherein said conversion characteristic-calculating unit determines the

conversion characteristic based on the characteristic value.

5. A display control device for outputting an output image signal, the display control device comprising:

- a color-converting unit operable to map an input image signal in an RGB color space to a image signal in another color space such that the image signal in the other space possesses a brightness component and other components;

- a conversion characteristic-calculating unit operable to determine a conversion characteristic adaptively with respect to the brightness component;

- a signal-converting unit operable to convert the brightness component in accordance with the conversion characteristic determined by said conversion characteristic-calculating unit; and

- an inverse color-converting unit operable to map a image signal in the other color space, the image signal being composed of the brightness component converted by said signal-converting unit and the other components, to a image signal in the RGB color space as the output image signal.

6. A display control device for outputting an output image signal, the display control device comprising:

- a color-converting unit operable to map an input image signal in an RGB color space to a image signal in another color space such that the image signal in the other space possesses a brightness component and other components;

- a conversion characteristic-calculating unit operable to determine a conversion characteristic adaptively with respect to the input image signal;

- a signal-converting unit operable to convert the brightness component in accordance with the conversion characteristic determined by said conversion characteristic-calculating unit; and

- an inverse color-converting unit operable to map a image signal in the other color space, the image signal being composed of the brightness component converted by

said signal-converting unit and the other components, to a image signal in the RGB color space as the output image signal.

7. A display control device for outputting an output image signal, the display control device comprising:

- a color-converting unit operable to map an input image signal in an RGB color space to a image signal in another color space such that the image signal in the other space possesses a brightness component and other components;

- a weight-calculating unit operable to apply a mask to the brightness component in accordance with a weighting characteristic to generate a masked brightness component;

- a characteristic value-calculating unit operable to calculate a characteristic value based on the masked brightness component;

- a conversion characteristic-calculating unit operable to determine a conversion characteristic adaptively with respect to the brightness component based on the characteristic value;

- a signal-converting unit operable to convert the brightness component in accordance with the conversion characteristic determined by said conversion characteristic-calculating unit; and

- an inverse color-converting unit operable to map a image signal in the other color space, the image signal being composed of the brightness component converted by said signal-converting unit and the other components, to a image signal in the RGB color space as the output image signal.

8. The display control device as defined in claim 4, wherein the weighting characteristic suppresses low level region in the input image signal and high level region in the input image signal.

9. The display control device as defined in claim 4, wherein the weighting characteristic suppresses middle level region in the input image signal and high level

region in the input image signal.

10. The display control device as defined in claim 4, wherein the weighting characteristic is determined adaptively with respect to the input image signal.

11. The display control device as defined in claim 5, wherein the other color space possesses the same capacity as the RGB color space with respect to the brightness component.

12. The display control device as defined in claim 5, wherein the other color space is an HSV color space.

13. The display control device as defined in claim 5, wherein the brightness component is a maximum value of the RGB values.

14. The display control device as defined in claim 5, wherein the conversion characteristic is determined such that, assuming that an abscissa axis shows the input image signal and an ordinate axis shows the output image signal, and dividing a range from an origin to a full scale point along the abscissa axis into a low level region, which is close to the origin, a high level region, which is close to the full scale point, and a middle level region, which is positioned between the low level region and the high level region, an average slope of the output image signal in the middle level region is greater than any one of average slopes of the output image signal in the low and high level regions.

15. The display control device as defined in claim 1, wherein the conversion characteristic is determined such that, assuming that an abscissa axis shows the input image signal and an ordinate axis shows the output image signal, and dividing a range from an origin to a full scale point along the abscissa axis into a low level region, which is close to the origin, a high level region, which is close to the full scale point, and a middle level region, which is positioned between the low level region and the high level region, an average slope of the output image signal in the middle level region is greater than any one of average slopes of the output image signal in the low and high level

regions.

16. The display control device as defined in claim 15, wherein the characteristic value determines a size and location of the middle level region.

17. The display control device as defined in claim 15, wherein the characteristic value is an average brightness of an image being expressed by the input image signal.

18. The display control device as defined in claim 15, wherein said characteristic value-calculating unit outputs a signal that adjusts an output level of said signal-converting unit and a light emission level of an external light source in a correlated manner.

19. The display control device as defined in claim 15, further comprising a light source-adjusting unit operable to adjust an output image signal to be fed to a display panel and a light emission control signal to be fed to an external light source in a correlated manner based on the output image signal of said signal-converting unit.

20. The display control device as defined in claim 18, wherein, when a maximum ordinate value of the conversion characteristic falls below a threshold value, said characteristic value-calculating unit performs adjustment so as to raise the output level of said signal-converting unit and to lower the light emission level of the external light source.

21. The display control device as defined in claim 18, wherein, when a maximum ordinate value of said conversion characteristic exceeds a threshold value, said characteristic value-calculating unit performs adjustment so as to raise the light emission level of the external light source.

22. The display control device as defined in claim 14, wherein the conversion characteristic is composed of a plurality of segments possessing respectively fixed slopes.

23. The display control device as defined in claim 14, wherein the low level

region, the middle level region, and the high level region possess a respective single segment.

24. A display device comprising:

a display unit; and

a display control device operable to output an output image signal, and further operable to control said display unit using the output image signal, said display control device comprising:

a characteristic value-calculating unit operable to calculate a characteristic value based on an input image signal; and

a conversion characteristic-calculating unit operable to determine at least one conversion characteristic adaptively with respect to the input image signal based on the characteristic value,

wherein said characteristic value-calculating unit calculates a plurality of characteristic values based on the input image signal.

25. A display device as defined in claim 24, wherein said display unit further comprises:

a display panel operable to display an image, by inputting the output image signal from said signal-converting unit, the output image signal having been adjusted in output levels in accordance with the conversion characteristic determined by said conversion characteristic-calculating unit of said display control device; and

a light source operable to illuminate said display panel with an emission level controlled in accordance with the conversion characteristic determined by said conversion characteristic-calculating unit of said display control device.

26. A display control device for outputting an output image signal, the display control device comprising:

a color-converting unit operable to map an input image signal in an RGB color space to a image signal in another color space such that the image signal in the other

space possesses a brightness component, a chroma component, and one or more other components;

a brightness-converting unit operable to convert the brightness component in accordance with a fixed brightness conversion characteristic;

a chroma-converting unit operable to convert the chroma component in accordance with a fixed chroma conversion characteristic; and

an inverse color-converting unit operable to map a image signal in the other color space, the image signal being composed of the brightness component converted by said brightness-converting unit, the chroma component converted by said chroma-converting unit, and the one or more other components, to a image signal in the RGB color space as an output image signal,

wherein the chroma conversion characteristic is composed of a plurality of segments possessing respectively fixed slopes.

27. The display control device as defined in claim 26, wherein the brightness conversion characteristic is composed of a plurality of segments possessing respectively fixed slopes, and

wherein the brightness conversion characteristic is determined such that, assuming that an abscissa axis shows the input image signal and an ordinate axis shows the output image signal, and dividing a range from an origin to a full scale point along the abscissa axis into a low level region, which is close to the origin, a high level region, which is close to the full scale point, and a middle level region, which is positioned between the low level region and the high level region, an average slope of the output image signal in the middle level region is greater than any one of average slopes of the output image signal in the low and high level regions.

28. The display control device as defined in claim 26, wherein the plurality of segments of the chroma conversion characteristic are composed of broken lines that are connected in an upward convex manner.

29. The display control device as defined in claim 26, wherein the brightness component $V = (\text{a maximum value of the RGB values})$, and the chroma component $S = ((\text{the maximum value of the RGB values}) - (\text{a minimum value of the RGB values})) / (\text{the maximum value of the RGB values})$.

30. A display device comprising:

a display unit; and a display control device operable to control said display unit,

said display control device comprising:

a color-converting unit operable to map an input image signal in an RGB color space to a image signal in another color space such that the image signal in the other space possesses a brightness component, a chroma component, and one or more other components;

a brightness-converting unit operable to convert the brightness component in accordance with a fixed brightness conversion characteristic;

a chroma-converting unit operable to convert the chroma component in accordance with a fixed chroma conversion characteristic; and

an inverse color-converting unit operable to map a image signal in the other color space, the image signal being composed of the brightness component converted by said brightness-converting unit, the chroma component converted by said chroma-converting unit, and the one or more other components, to a image signal in the RGB color space as an output image signal,

wherein the chroma conversion characteristic is composed of a plurality of segments possessing respectively fixed slopes.